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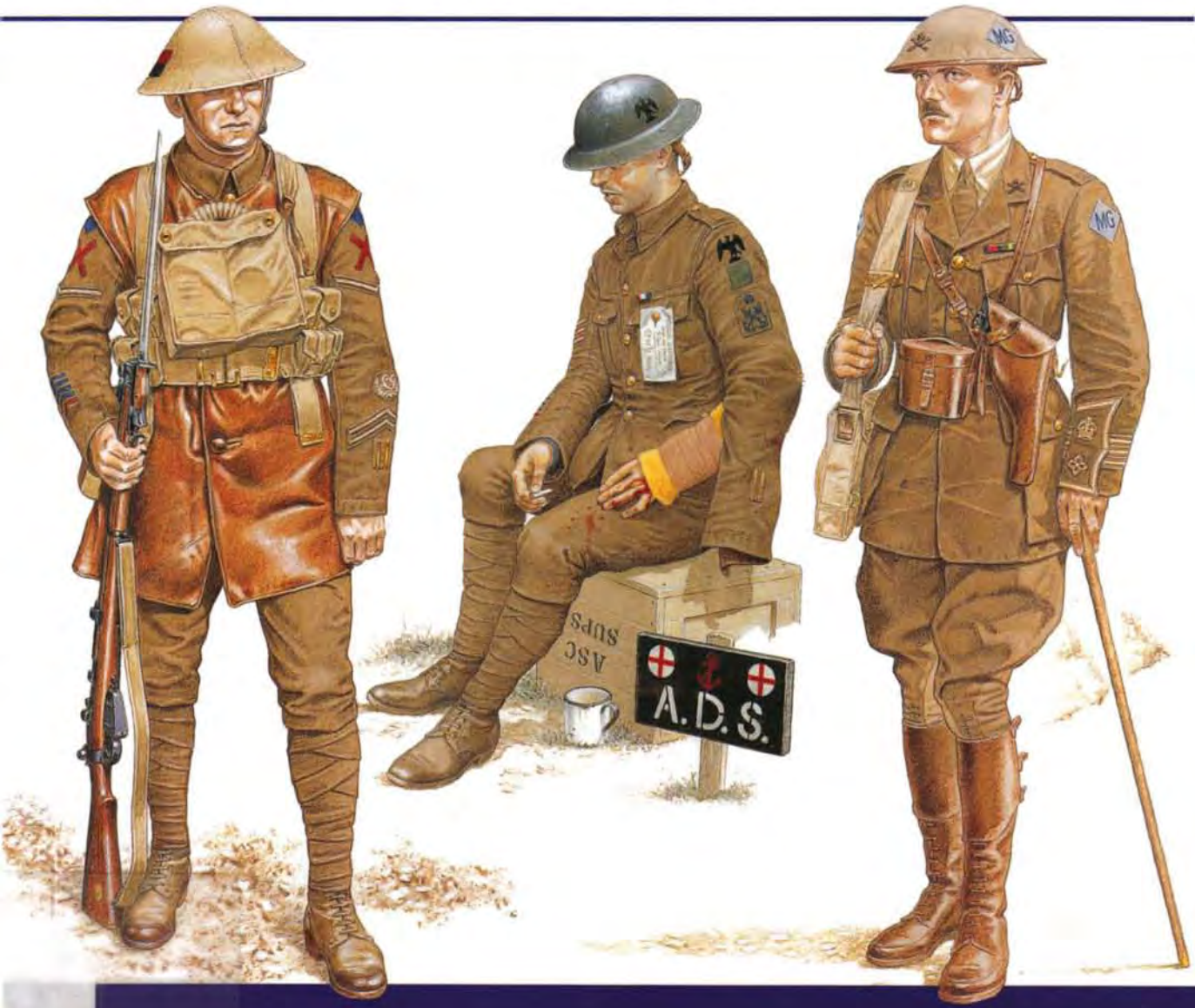
The British Army in World War I (2)

The Western Front 1916–18



ike Chappell

MIKE CHAPPELL comes from an Aldershot family with British Army connections stretching back several generations. He enlisted as a teenage private in the Royal Hampshire Regiment in 1952 and retired in 1974, as RSM of the 1st Battalion The Wessex Regiment (Rifle Volunteers), after seeing service in Malaya, Cyprus, Swaziland, Libya, Germany, Ulster and home garrisons. He began painting military subjects in 1968 and since then has gained worldwide popularity as a military illustrator. Mike has written and illustrated many books for Osprey.

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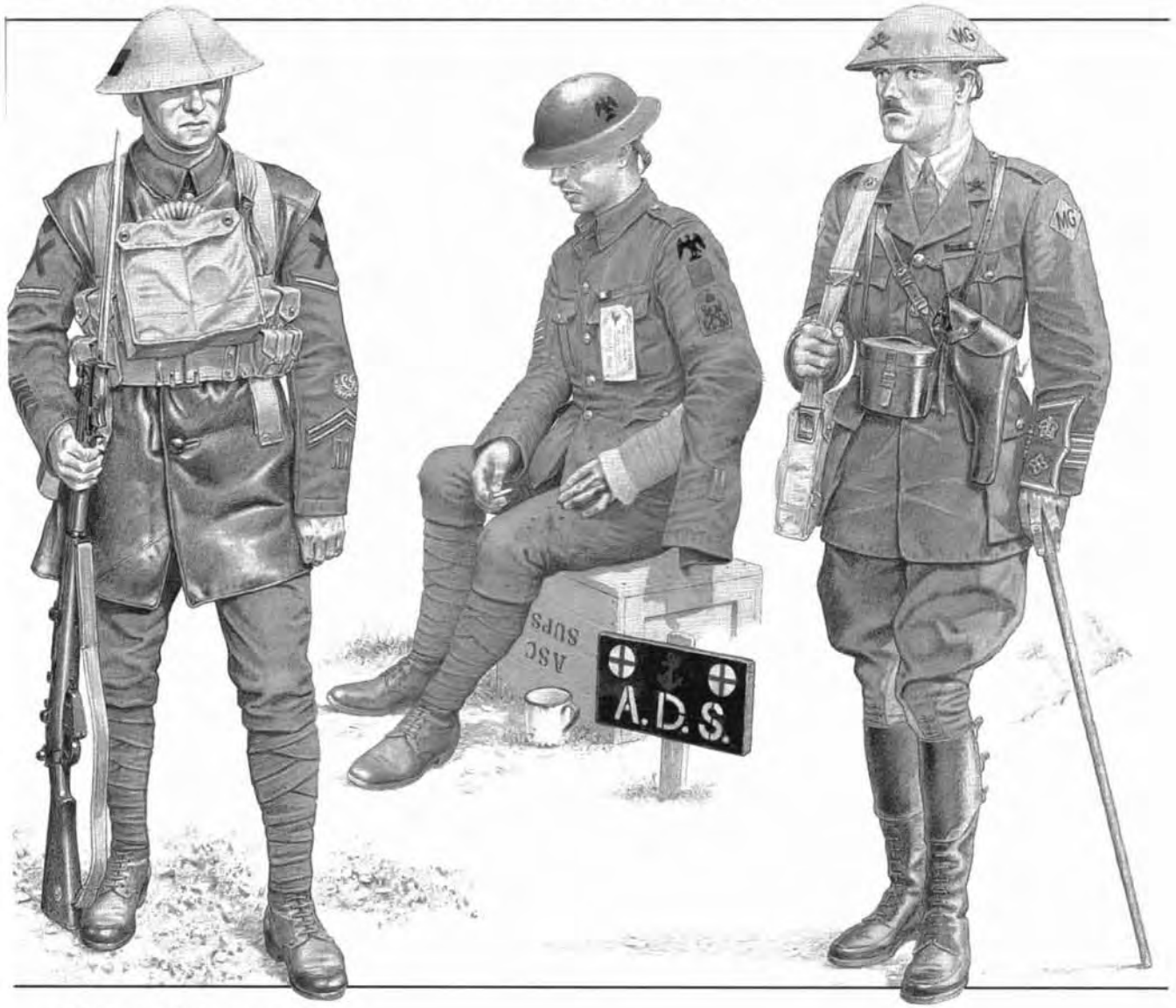

Mike Chappell

Series editor Martin Windrow

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THE BRITISH ARMY IN WORLD WAR I (2) THE WESTERN FRONT 1917–18

INTRODUCTION

The period from August 1914 to the end of 1916 saw the British Army grow from a peacetime establishment of barely 200,000 Regulars to a force numbered in millions. Regular reservists were recalled to the colours; a Territorial Force of half a million men was mobilized; and over 2,400,000 volunteers were absorbed, mostly into the formations of the 'New Army' – the creation of Field Marshal the Earl Kitchener of Khartoum, Britain's Secretary of State for War. The story of the British Army in this turbulent 28-month period has been summarized in the first part of this study.[1] This book continues the story of that part of Britain's army which fought on the Western Front up to the cessation of hostilities in November 1918. Despite its massive expansion it retained the name given to the small force of regulars which had been first in the fight: the British Expeditionary Force.

When the BEF paused after its first major offensive, the Somme campaign of 1916, it looked back over a time best summed up in later years by David Lloyd George, Britain's Prime Minister from December 1916, who wrote: 'There is no doubt at all that we should have been able to organize the nation for war far more effectively in 1914 if at the very outset we had mobilized the whole nation on a war footing and bent all our resources to the task of victory on rational and systematic lines. Towards the end something approaching this condition was in fact reached, but there had intervened a long and deplorably extravagant prelude of waste and hesitation.' This 'prelude' was effectively over by the new year of 1917, by which time, under Lloyd George's leadership, nation and army were fully organized for war and grimly determined to fight on until victory.

By this time what had begun as a European war had developed into a conflict of global proportions, with fighting in Africa and Asia as German colonies were invaded and the empire of Ottoman Turkey was attacked. At sea the advent of unrestricted submarine warfare waged by Germany, and the consequential loss of American lives, became one of the factors which drew the United States into the war on the side of the Entente powers, which by then consisted of the empires of Russia, France and Great Britain, as

After six months as Secretary of State for War in succession to Lord Kitchener – during which he visited the Western Front in September, and was photographed near Fricourt – David Lloyd George became Prime Minister in December 1916. He had the drive, charisma and deviousness of the born politician; he inspired loyalty and affection in some, but was distrusted by most of Britain's general officers. Note that the staff officer (right) wears, instead of a removable brassard on his right arm, the outer part of one sewn directly to his sleeve. (Imperial War Museum)

1 See MAA 391, *The British Army in World War I (1): The Western Front 1914–16*

well as Italy, what was left of Belgium, Japan, and a number of other countries such as Portugal and some Balkan states.

Together the Allied armies encircled those of the Central Powers (essentially Germany, Austria-Hungary and Turkey) in eastern Europe, the Middle East, Macedonia and northern Italy; and in Western Europe, where armies from France, Great Britain and Belgium remained deadlocked with the German armies in the great linear fortifications – collectively termed simply 'the trenches' – that ran from the Belgian coast, through northern France and along the Franco-German frontier to neutral Switzerland. Here, on their Western Front, the Germans held most of Belgium and great tracts of French territory, from which they defied the Allies. Both sides viewed the Western Front as the theatre of operations where a rupture of the enemy's line, a 'breakthrough', would lead most directly to victory – a view that relegated other fronts and theatres to secondary or 'sideshow' status in their eyes, despite the major resources tied down on the main Eastern Front facing Russia.

Although the British Army was involved in several of these 'sideshows', its greatest commitment remained the Western Front, where by early 1917 the BEF had grown to five numbered armies and had taken over a greater part of the line than ever before. Beginning with the 160,000 Regulars who had crossed the Channel in August 1914 to fight beside the French Army, the BEF had grown as units and formations from Britain's Territorial Force, the Empire, and Kitchener's 'New Army' joined it over the next two years. Blooded by the fighting that took place over that time, particularly during the great Somme offensive of 1916, the BEF became a skilled and experienced force in which every man was a volunteer. Most had endured the chaos caused by Britain's unpreparedness to fight a war of this magnitude, and most had seen comrades sacrificed through poor training, support and leadership. But the morale and resolve of the BEF remained high, while the same could not be said for the armies of some of their allies: the Russian Army was to collapse during 1917, while the French offensives of that year brought about a crisis of morale in their army.

From early 1917 until the end of the war the BEF would be called upon to take some of the weight off their flagging allies, and to keep up the pressure on the enemy in what became a campaign of attrition – an

During the retreats of March 1918, infantrymen near the Somme crossings have pressed an old pram into service to carry a stretcher case. They wear 'battle order' over the sleeveless leather jerkin issued in cold or wet weather since the previous year – cf Plate A1. This garment was also produced in heavy off-white canvas for issue to rear area troops such as the Construction Corps. (IWM)

apparently inescapable, even cynical power struggle conducted by the leaders of the warring nations in which the stakes were their countries' whole wealth, both material and human – until one side or the other called 'Enough!'

CONSCRIPTION

The development of the war confounded the leaders of the belligerent nations, none more so than those of Britain. In 1914 all had believed it would be a brief affair, 'over by Christmas', and after their seizure of Russian, Belgian and French territory the Germans were certainly prepared to come to the armistice tables. But the Entente powers, particularly the French, were not, and the war dragged on, consuming wealth and manpower far beyond the expectations of 1914. Those countries which in the pre-war years had practised systems of conscription dug into their reserves of manpower. Britain, the hub of the richest empire in the world, had the gold but not the men. During her efforts to raise an army of continental proportions, patriotic exhortation brought forward 2,466,719 volunteers between the outbreak of war and December 1915; but by that time the surge had slowed to a trickle, as the realities of this new type of war became widely known. The time for compulsion had arrived.

Britain was slow to put itself on a war footing. The chaos surrounding the raising of 'Kitchener's Army' served to ensure that its units and formations arrived in France raw, badly trained and lacking in munitions. The so-called 'shell scandal' of 1915 had the beneficial effect of bringing into being a Ministry of Munitions to address shortages, and a survey of manpower was conducted in order to direct labour in the war industries. The National Register of August 1915 sought first to establish the nation's reserves of manpower, and its census showed there to be over 1.5 million men in 'reserved occupations' – working in industry or agriculture for the war effort. It further showed that there were 2.7 million men of military age and fitness who might be considered as a pool of military manpower. Inevitably, the government drew up the first of its schemes to tap this rich source.

King George V inspects survivors of the 2/6th South Staffordshires at Gauchin, March 1918. This battalion had formed part of the 59th Division, which was smashed in the German offensive of that month. Many of the 'men' shown here are conscripts barely 19 years old. (IWM)

This began with the appointment of Lord Derby as Director of Recruiting. He was given the task of obtaining sufficient reinforcements for the British Army by invigorating the flagging voluntary system to recruit young, single men. His scheme involved calling forward all men on the National Register between the ages of 18 and 41, who were to be attested as recruits and then sent home, on the understanding that they would be called 'to the colours' when required. In the event there was a marked reluctance to answer Lord Derby's call, and the refrain of a popular song of the day summed up the mood of Britain's reluctant heroes: 'Send for me mother, me sister or me brother, But for Gawd's sake don't send me!'

Men of the 57th Division entering Lille after its liberation from the Germans, October 1918. Many are teenage boys, called up as conscripts at 18 years of age and sent to the front at nineteen. (IWM)

Only 318,000 single men and 403,000 married men responded for attestation under the Derby scheme. In January 1916 a bill was put before Parliament proposing a Military Service Act aimed at the compulsory enlistment of single men of military age. Categories of exemption included those engaged in work of 'national importance', and conscientious objectors. This 'Bachelor's Bill' passed into law on 27 January 1916, but still failed to produce the numbers needed by the Army. With voluntary enlistments at an all-time low, the Chief of the Imperial General Staff reported to the cabinet in March 1916 that of the 193,000 men called up under the Military Service Act, 57,000 had failed to report. Large numbers of men who had answered the National Register had moved from their given addresses to evade call-up and could not be traced. Consequently, in May 1916 a bill was introduced amending the Military Service Act to bring in universal conscription regardless of marital status. Succeeding bills amended the act's provisions regarding exemptions, the conscription of Britons abroad and of Allied citizens in Great Britain, the raising of the upper age limit, and the extension of compulsory service to Ireland if required. A Ministry of National Service was established in 1917 to oversee the administration of the system. From January 1916 a total of 2,504,183 men were to be conscripted for service with the British Army, slightly more than had enlisted voluntarily before compulsion was adopted.

The first of these conscripts were sent out to the BEF in late 1916, arriving in time for some of them to take part in the closing battles of the Somme campaign. Unlike the early volunteers, who had formed up and 'trained' as units and formations, the conscripts moved to the Western Front as reinforcements to replace casualties in units that had previously been all-volunteer. In time attrition saw to it that conscripts became the majority of the BEF's manpower, especially after the bloody battles of 1917. It was these pressed men, mostly boys under 20, who stemmed the last great German offensive on the Western Front in spring 1918, and then drove their defeated enemies before them until they sued for armistice.

ORGANIZATION, 1917–18

Unprepared for anything more than a token commitment to a European land war, by 1917 Great Britain had been forced to adopt a proper war

footing. By then its government controlled national manpower and the industrial might needed to wage what had become a world war, and the leaders who had presided over the early 'business as usual' period, when chaos, wasted effort and squandered resources hindered the prosecution of the war, had been swept aside. In their place a more determined and efficient leadership was headed by David Lloyd George, a dynamic Welshman who became Prime Minister in December 1916 after having been Minister of Munitions, and before that Chancellor of the Exchequer (i.e. finance minister). To his leadership went much of the credit for the transformation of the country to a war economy.

'Sergeant Wooldridge's Squad, Grenadier Guards, Caterham, March 1917.' Of the 32 men in the photograph, ten were to be killed in action with one or other of the four battalions of the Grenadiers serving on the Western Front. (Ken Dunn)

Training

The British Army had also put its house in order by 1917. With no training organization worthy of the name, the feeble efforts of its pre-war Regular establishment had served Kitchener's New Armies badly, sending them off to the fronts ill prepared for the realities of battle. Ironically, no sooner were they gone than moves began to establish the kind of training apparatus that would have greatly benefited Kitchener's volunteers. Fortunately it was to be functioning in time for the pressed men called to the colours by the 1916 conscription acts.

Not all the reinforcements sent to the Western Front in 1918 were callow boys; here men of the 1/5th Devons take their ease, July 1918. They had recently arrived in France via Marseilles having spent the years since 1914 in India and the Middle East. In summer weather shortened trousers were often worn on the Western Front; these have been opened at the seams and fitted with retaining buttons on the thighs. (Author's collection)

By 1918 many fit men in the 'tail' of the BEF had been combed out for service with the infantry. Their places were taken by medically downgraded men like this soldier, who displays three wound stripes as a legacy of his infantry service, and now serves with the Army Ordnance Corps in a rear area. His equipment is a mixture of 1903 pattern leather items, a small box respirator and 1908 pattern webbing. (IWM)

First came the training of leaders. This had been a leisurely procedure in peacetime, when young officers were trained at Sandhurst and Woolwich before being commissioned into the regiments and corps of the British Army. In the overstrained chaos of voluntary enlistment in 1914 and early 1915, commissions were granted to thousands of men with no officer training at all, or with only the rudimentary instruction they had received as cadets in public school and university Officer Training Corps; more than 20,000 commissions went to former members of the OTC. In early 1915 commissions began to be granted to 'suitable' men from the ranks, on the basis of their commanding officers' recommendation and four weeks' training in a unit such as the Artists' Rifles, the Inns of Court Regiment, and OTC contingents. In 1916 officer training was finally put on a proper footing when Officer Cadet Battalions were established to train recommended men who had served in the ranks or in the OTC. These courses lasted four months, after which those who had qualified were commissioned. By 1917 there were 22 such battalions, each with an establishment of 600 cadets under training, and a total of more than 73,000 infantry officers would be commissioned by this route. In addition, the academies at Sandhurst and Woolwich continued to commission Regular officers after courses lasting up to a year.

The training organization for the infantry 'rank and file' of the Army grew from the Reserve units of the Regular and New Army battalions, and the 'Third Line' units of the battalions of the Territorial Force – these latter had remained in the United Kingdom when their service units moved overseas. Reserve units underwent various reorganization so that they might more effectively train the recruits coming in under the volunteer system; but in 1916, when it was found that this organization was unable to cope with the large influx of recruits brought in by conscription, it was decided to form a 'Training Reserve' consisting initially of 112 battalions and 24 brigades. Holding and drafting units received recruits straight from civil life, posted them to the Training Reserve when formed as drafts, and held trained men for posting to units overseas.

In 1917 this Training Reserve was reorganized. 'Young Soldiers Battalions' now took recruits aged 18, put them through basic training, and posted them to 'Graduated Battalions' to continue and complete their training until they attained the age of 19, when they could legally be sent to war. (These units had the secondary role of the defence of the UK, replacing 'Home Service' Territorial units, which were then disbanded.) Trainees usually moved through the system in the company-sized drafts into which they had been formed up, and with which they would go overseas. Those arriving in France for the units of the BEF would go first to an infantry base, where they would undergo further training before being sent on to units; the 18-year-olds would thus have benefited from up to a year's intensive training.

The Territorial Force continued to be an army apart from the Regular and New Army regiments whose cap badges and designations they mostly shared. In 1917 there were still serving Territorials who had enlisted for home service only, formed into 41 'Provisional Battalions' which made up three divisions for home defence. These were eventually replaced by Graduated Battalions, the Provisional Battalions becoming numbered home service Territorial battalions of various infantry regiments and

serving at home until the end of the war. (Their safe status gave rise to bitter comment, such as the lyric 'Send for the brave Territorials, they'll face danger with a smile – I don't think!'). However, the majority of Territorials opted to serve their country overseas, their units leaving behind a Third Line to train and send forward reinforcements. These Third Line battalions were formed into 14 Third Line Groups in 1915, and became 'Reserve Battalions, TF' in 1916, when the groups were redesignated as 'Reserve Brigades, TF'.

Basic and continuation training for men called up under the Derby and later schemes of conscription was far more thorough than that undergone by the volunteers of 1914 and 1915. Squad drill, physical training, bayonet exercise and route marching still took up a part of the infantry recruit's time, but there was much more emphasis on the skills that would be required of him on active service. As well as proper musketry instruction and range courses he received training with anti-gas equipment, hand grenades and rifle grenades. Tactical training included night patrolling, and skirmishing – rudimentary 'fire and movement' exercises reflected the changes in infantry minor tactics brought in after the experience of the Somme battles. Recruits were instructed in the routines of trench warfare, for which dummy trench lines were dug on training areas in order to practice relief in the line, and to gain the first experience of trench life.

(One such layout can still be traced at the western end of the 'Long Valley', Aldershot. Now overgrown with trees and undergrowth, its 'front line' faces the 'no-man's-land' of the Church Crookham road, which runs only yards from the parapet, and on the far side of which stood a public house. We may imagine that numbers of the soldiers 'standing to' at dusk, as the sounds of revelry drifted across to them, must have slipped away from practice wiring parties or patrols for a swift pint at the pub's back door.)

Infantry training of the time was aimed at turning out a soldier skilled in the use of rifle, bayonet and grenade; skills such as signalling, sniping, and the use of the Lewis gun and Stokes mortar were taught to selected men after joining field units. Training for those men chosen for the Royal Artillery, the Machine Gun Corps, the Royal Engineers, the Tank Corps, the Royal Army Medical Corps and the supporting corps consisted of basic training similar to that of the infantry, followed by training special to the roles the recruits were to fulfil.

Gen Sir W.R. Robertson, KCB, KCVO, DSO, Chief of the Imperial General Staff from December 1915 until he was 'promoted' out of the post in February 1918 by Lloyd George. In that period he ensured that the greatest effort was centred on the Western Front, by scuppering the madcap ideas of the politicians and by shielding Sir Douglas Haig from their plots. 'Wullie' had an extraordinary career; he enlisted as a trooper in a cavalry regiment and served for many years in the ranks before gaining his commission, after which he climbed to the highest rank in the British Army. (Author's collection)

Reinforcements

By far the greatest demand on the training organization was for infantry reinforcements. The appalling casualties suffered by the 'poor bloody infantry' – the PBI – in the battles of 1917, particularly at Third Ypres or Passchendaele, brought about a manning crisis when the prime minister decided to constrain Field-Marshal Haig from further costly offensives by retaining in the UK large numbers of reinforcements that should have gone to the Western Front. The BEF was forced to resort to measures such as 'combing out' fit men from the bases and lines of communications; and in early 1918 the infantry strength of each division was reduced from 12 battalions to nine. The shortage of infantry was to have disastrous

Table 1: 39th DIVISION, 1917 & 1918

July 1917	March 1918
116th Infantry Brigade:	*116th Infantry Bde:*
11th R. Sussex	11th R. Sussex
12th R. Sussex	13th R. Sussex
13th R. Sussex	1/1st Hertfordshire
14th Hampshire	
117th Infantry Bde:	*117th Infantry Bde:*
16th Notts & Derby	16th Notts & Derby
17th Notts & Derby	17th KRRC
17th KRRC	16th Rifle Brigade
16th Rifle Brigade	
118th Infantry Bde:	*118th Infantry Bde:*
1/6th Cheshire	1/6th Cheshire
4/5th Black Watch	4/5th Black Watch
1/1st Cambridgeshire	1/1st Cambridgeshire
1/1st Hertfordshire	

consequences in early 1918, when British sectors were so thinly held that their vulnerability was obvious to the Germans, who chose the front of the British Fifth Army as the point for their offensive of March 1918. One of the Fifth Army divisions smashed by the German Operation 'Michael' was the 39th Division, whose comparative strengths in battalions are shown in the accompanying table. By early April 1918 the infantry of this division had been reduced to a single composite brigade of five 'battalions'; and by June the 39th was 'reduced to cadre', to be used as a training formation for troops of the American Expeditionary Force and to provide drafts for other British units similarly reduced.

Other expedients resorted to were the withdrawal of units and formations from Italy and the Middle East, and the 'absorbing' of Yeomanry units by infantry units. By such means infantry manning and reinforcement was kept up in defiance of Lloyd George, enabling the BEF to play a full part in the stemming of the German offensive, and the Allied counter-offensive which caused the fall of the German government and forced its successors to seek an armistice.

The efficient organization and management of the British Army from early 1917 matched that of the leaders and workers of its 'home front', producing a 'nation in arms' the equal of any of the continental powers. Some 5,704,000 men served in the British Army during World War I, of which over 700,000 lost their lives. The years of bloodshed and suffering brought about a collapse of morale in the armies of most of the warring nations at one time or another; but the British Army maintained its fighting spirit to the end.

Command

Throughout the second half of the war, Gen (later FM) Sir Douglas Haig remained Commander-in-Chief of the BEF, despite repeated efforts by Prime Minister Lloyd George to replace him. The death of Kitchener in 1916 saw the War Office pass into the hands of politicians, and the cabinet's faith in the Western Front as the decisive theatre of operations dwindled as casualties there mounted for what appeared to be no gain. While the military remained 'Westerners', a faction grew among the politicians which determined to seek the defeat of the Central Powers elsewhere, preferably in south-eastern Europe. Vociferous amongst these 'Easterners' were Lloyd George himself and Mr Winston Churchill, who had already presided over one dismal failure in the east – the Dardanelles expedition. (In a later war Churchill was to pursue his obsession with adventures in what he was to call 'the soft underbelly of Europe'. As late as the autumn of 1943 he sent a force to occupy islands in the Dodecanese, provoking a German reaction which killed or captured 8,500 British servicemen.)

After Third Ypres, Lloyd George set out to remove Haig from command of the BEF, and when this proved impossible he sought ways to limit his freedom of action by placing the BEF under French command. His

attempt to curtail Haig by limiting reinforcements to the BEF weakened the force at a time when scores of German divisions from the Russian Front were massing for an offensive in the west. Nevertheless, under the leadership of Sir Douglas (ably assisted by Sir William Robertson, Chief of the General Staff until ousted by Lloyd George), the commanders of the formations that formed the BEF – and, perhaps more importantly, their staffs – developed through experience the skills and the confidence in command that they had often lacked in full measure before 1917.

WEAPONS & TACTICS: ARTILLERY

Ammunition

It has been said that the artillery piece, be it gun or howitzer, is merely the means of launching and directing to its target the true artillery weapon, the shell. It is the shell, with its payload of explosive or other death-dealing substances, detonated on or above its target by its integral fuse, that inflicts casualties on an enemy or smashes his defences. The British Army, and the BEF in particular, fought the first half of World War I with serious deficiencies in their artillery weapons which were only overcome by 1917.

No new artillery guns or howitzers were introduced into service with the British Army in the years 1917 and 1918. There were modifications of the existing types to improve their durability or performance, but the BEF fought the second half of the war with the same guns available in 1914. Throughout the war the principal field gun of the BEF was the 18-pounder, the numbers of which equalled the total of all other guns and howitzers. (At the time of the Armistice, for example, there were 3,162 18-pdrs on the Western Front, compared to 3,275 of all other types.) Undoubtedly a good gun for open warfare, the 18-pdr proved to be less than perfect for the conditions of the Western Front, where its maximum range of 6,525 yards and the 13 ounces of explosive carried by its HE shell were limitations on its effectiveness – facts well known by 1917 when trials began on an improved gun and carriage.

The calibre and shell-weight of the new gun remained that of the 18-pdr; with production of ammunition running at scores of millions it would have been remarkable if it had been changed. The new Mark 4 gun

The Mark 4 18-pdr field gun, a much improved design with a maximum range of 9,300 yards (5 miles). Very few of these guns reached the BEF before the Armistice. (Author's collection)

A cargo of 9.2in howitzer shells moving forward on a narrow gauge railway, 1918. The towing vehicle is a converted Model 'T' Ford car. In the background are horses towing limbers, and a convoy of lorries. (IWM)

had a box trail which allowed the gun to be elevated to 30 degrees, thus increasing the range of its shell from 6,525 to 9,300 yards. An improved breech mechanism and a recoil system using oil and compressed air contributed to a steady gun which could reach a rate of fire of over 30 rounds per minute. Unfortunately, very few Mark 4 18-pdrs were in action with the BEF before the ceasefire of 11 November 1918.

If the means of delivery changed little, the missiles they launched changed a great deal in 1917 and 1918. The field artillery of the BEF had gone into action in 1914 with the doctrine 'one shell, one fuse'. The shell discharged shrapnel balls over its target when its fuse – a timing device – had activated. Shrapnel was more effective than any other shell against troops in the open, as the British Army had found in a succession of colonial wars, and it proved equally effective against German formations in the opening battles of 1914. But once the enemy dug in and put up overhead cover he was safe from it. What was needed was the type of ammunition that the German Army had in abundance to rain down on the trenches of the BEF – high explosive shell with a percussion fuse. In the British Army of 1914, HE ammunition was only made for howitzers, and represented only a proportion even of their ammunition. The explosive used was Lyddite, a not entirely reliable compound which was difficult to detonate.

The story of the problems associated with the supply of artillery ammunition to the BEF, the so-called 'shell scandal', has already been touched upon. Great Britain went to war with only the Royal Ordnance Factories able to manufacture artillery ammunition for the BEF. The enormous demand for shells (especially HE) brought about by the advent of trench warfare overwhelmed the resources of the ROF when they were ordered to increase production of existing types on a scale unimagined, to devise and manufacture HE and the shells to carry it for all weapons, and to design and rush into production fuses for the new HE shells. In the case of the 18-pdr, the first HE shells were tested as early as October 1914, but continued to be in short supply for more than a year after that date owing to the difficulties in finding a substitute explosive to replace Lyddite and in setting up factories to supply it. Large numbers of shells stood empty until a mixture of TNT and ammonium nitrate, a by-product of the fertilizer industry, was judged suitable; this compound was named Amatol.

The fuses devised for HE shells were all of the '100 series'. The original No.100 fuse went from design to production in ten days in 1914, and gave trouble from the start. There was a spate of 'bore prematures' – the detonation of the shell in the barrel of the gun – at first in 4.5in howitzers; these became so well known that their crews were nicknamed 'suicide clubs'. When HE shells fitted with No.100 fuses became available

for 18-pdrs, these too proved prone to 'prematures'. Nor was the problem confined to field artillery: two 9.2in howitzers were burst by prematures during the Somme fighting of 1916. At least two disastrous explosions at ammunition depots in France were traced to ammunition with No.100 fuses being roughly handled or dropped.

But by far the most serious defect of the No.100 series was the failure of large numbers to detonate when they landed, leaving battlefields littered with British 'duds'. Of the 1.7 million rounds of artillery ammunition fired in the eight-day bombardment that preceded the infantry assault on the Somme on 1 July 1916, it has been estimated that as many as one-third were duds. Accepting the premise that the proportion of shrapnel to HE was 50/50, and even that the shrapnel 'time and percussion' fuse was both safe to use and effective in operation, this leads to the stark conclusion that of the 850,000 HE shells fired, only 280,000 detonated and 570,000 dropped on or near their targets inert. The German positions therefore received only a fraction of the HE bombardment which had been planned.

Arras, April 1917: 9.2in howitzer of the Royal Garrison Artillery ready to fire, while the men at the right set fuses for the next few rounds. This monstrous weapon weighed 4½ tons and hurled a 290 pound HE shell out to 14,000 yards (8 miles). (IWM)

One of the largest horse-drawn pieces used by the Royal Artillery was the 60-pdr gun, drawn by a team of six large draught horses. Some can be seen in this photograph of a battery of 60-pdrs coming into action in 1918. Larger guns and howitzers were towed by petrol-engined tractors. (IWM)

The dangerous shortcomings of the No.100 fuse were appreciated by the gunners of the BEF soon after its issue, but the urgency of accident reports was diluted by their being passed back through both Royal Artillery and Ordnance channels, each of which dealt with aspects of the problems independently. These deliberations were disrupted when in November 1915 Lloyd George, as Minister of Munitions, seized responsibility for designs and inventions from the Master-General of Ordnance and removed that worthy's responsibility for trials. This action had the further effect of disrupting the investigation of 'prematures', and the Ministry of Munitions went ahead with the design and manufacture of a new fuse, the No.101. Although not as unsafe as the No.100, this too was far from perfect, and its description in the ammunition notes of the time is interesting:

'Fuse, Percussion, No.101. This fuse is to supersede the other graze and percussion fuses in HE or smoke shell... It is generally similar in outline to the No.100, but it has no percussion pellet, and the detonator is contained in the graze pellet. With this arrangement it is possible for the needle to fire the detonator when the cap is crushed on impact, although the graze pellet may not have functioned' (in other words, even if the mechanism which locked the graze pellet had jammed, or had been tampered with by crews determined to prevent 'prematures').

In order to eradicate the problem of 'bore prematures', safety shutters were incorporated to seal off the fuse from the charge until the shell had travelled some distance, or delay devices were inserted between the fuse and the main charge. The latter had the effect of allowing the shell to bury itself before detonation, cratering the battlefield and reducing the lethal effect of the shell splinters. The authorities went to great lengths to indicate to users that the fuses which came after the No.100 were safe. Those with safety shutters were marked with the suffix 'E'; those with delay composition had blue-painted nosecaps; ammunition boxes were clearly marked 'WITHOUT PELLET', and the bodies of the later fuses were marked with bands.

A four-horse team drawing two ammunition limbers at the crossing of the Canal du Nord, September 1918. When a battery was in action ammunition was brought up to the guns in relays in this manner from the Divisional Ammunition Column. (IWM)

How much confidence these measures encouraged is hard to gauge, but it cannot have been much, since the British were eventually forced to copy the fuse used by the French, thus disrupting production running into millions of fuses while retooling for the new design. The 'Fuse, Percussion, Direct Action, No.106' had one internal and four external safety devices, was completely safe to use, and detonated its shell immediately on contact, causing no crater and with maximum lethal splinter effect; it proved particularly effective against barbed wire. The No.106 came into use with the BEF in early 1917, and although it never completely replaced the No. 101 and its variants it became the most widely used, and certainly the most effective HE fuse.

By early 1917 new types of shell were available to the BEF artillery. No longer would they need to 'borrow' French batteries to put down concentrations of gas; British munitions factories were now producing gas shells for the 18-pdr gun, 4.5in howitzer and 60-pdr gun as well as for other types. The fillings ran the gamut of the poisons that science had found practical for delivery by this means. The range of shells for most guns and howitzers also included shrapnel, HE, white phosphorus (smoke shell) and illuminating ('star shell'), as well as special ammunition for anti-aircraft use. After more than two years of war, the batteries of the BEF at last had at their disposal effective and safe ammunition.

Tactics

Great changes had also been made in artillery organization and tactics. Anomalies over command of artillery had by 1917 been resolved, to permit general officers of the Royal Artillery to have proper powers over the use of the arm to which they had devoted their professional careers. Odd though it may seem, the exercise of artillery had formerly been the prerogative of the commanders of armies, corps and divisions through their general staffs. This worked in the early days of mobile warfare, when field gunnery was a comparatively uncomplicated business; but with the advent of trench warfare it became increasingly technical, requiring the supervision of experienced artillerymen. Changes in organization saw one field artillery brigade removed from the artillery complement of each division to form 'Army Brigades', no longer subject to the moves of a particular division and thus available for concentration wherever gunpower was required. Other changes brought back batteries of six guns instead of the four used in the battles of 1916.

The skills and equipment needed for the accurate application of indirect fire had been developed to a peak in 1917. Sound-ranging, flash-spotting, gun calibration, the application of meteorological data, accurate field survey, aerial photography and observation of all kinds were used to locate targets unseen by the batteries and to

When wheeled transport could not get through to the guns, ammunition was brought to them on the backs of pack animals, or even men. Here, two horses struggle through the mud of Pilckem Ridge in August 1917, each carrying eight 18-pdr shells. (IWM)

Royal Field Artillery observation post of the 9th (Scottish) Division, August 1918. Several field telephones are in use, and the incoming (double) lines to them are tagged with square labels identifying units. (IWM)

shoot at them with effect. However, difficulties with communications – a problem shared by all arms of the BEF – affected artillery to a greater degree than the rest. Poor communications limited or prevented contact between observers and gun positions, reducing the flexibility of fire control that was so essential if infantry in the assault were to be given effective close support. Lack of reliable means of communication had often committed artillery to 'timetable' bombardments and barrages, which invariably used enormous amounts of ammunition not always to best effect.

When communications did work, fire effect could be devastating. Some of the most innovative methods of communication were practised by the observers of the Royal Flying Corps. At the battle of Messines in June 1917, 280 radio links between observer aircraft and ground stations were in operation. The RFC also operated the balloon units which directed artillery fire by means of telephone. An account of the exercise of fire control from a balloon was recorded thus:

'The shoot of 300 rounds we were about to observe was being fired by Toc 1 [a battery of 9.2in howitzers, whose shells packed 290lb of HE] – their target was a 5.9 battery [German 150mm howitzers] – "No.1 fired!" – "Did you get it?" – "No…it was short". He telephoned a correction… "No.2 fired!" I saw that one. From the faint blur of smoke it had landed plumb in the wood, but owing to the distance and the jerking basket I could not…judge whether it was over, right, or both. Hoppy Cleaver knew, and another crisp correction was telephoned down. Half a dozen more rounds fell one after the other, all more or less visible… More corrections and rounds began to fall in and around the target area… Ranging ended and Toc 1 proceeded to gunfire 50 rounds per gun. As a result the target area, half the wood too, became obscured by smoke. There were three more fires, and it seemed that Toc 1 were giving that German battery hell.'

In the aftermath of the Somme battles of 1916 new tactics were devised by all arms in the light of the lessons learned in the 4½-month campaign. Overriding all other considerations was the question of whether the BEF was to fight a campaign of attrition – simply to kill as many of the enemy as possible – or to continue to seek a breakthrough in the enemy's line

OPPOSITE **Among the many means used for communications were carrier pigeons. Seen here is a homing 'loft' – a converted omnibus – from which motorcycle despatch riders are taking baskets of pigeons forward to units such as infantry battalions and tank companies. (IWM)**

A Royal Garrison Artillery 'Fullerphone' in operation, 1918. More secure than a field telephone, its signal was sent by Morse key. The diagonal white line is a crack in the glass negative. (IWM)

in order to defeat him in the 'open' warfare that would follow. Each called for a particular deployment of artillery resources: concentration for attrition, dispersal amongst formations for open warfare. This conundrum was never to be fully resolved for the artillery of the BEF until the German Army showed them the way in March 1918, when 41 German divisions were poised to strike against the eleven of the BEF's Fifth Army.

At 0440 hours on 21 March, 6,473 German artillery pieces began a hurricane bombardment that had been predicted with a precision rarely seen on the Western Front. Gas, HE and smoke shells saturated every previously identified British position for two hours, forcing the defenders into their shelters, masked and blinded, before switching to their front line to begin a rolling barrage behind which the German infantry advanced, preceded by storm troops. In the words of the British Official History, 'the very air seemed to vibrate with shell-bursts'. By a masterpiece of planning, good staff work and expertise the Germans had managed to concentrate massive gunpower, not for a prolonged attritional bombardment but to turn the front occupied by the Fifth Army into a living hell for just two hours before sending in their infantry.

The one artillery tactic already firmly established by 1917 was that of supporting infantry in the assault with 'creeping barrages' – gunfire behind which the infantry formed up and then advanced, as the wall of bursting shells moved ahead of them at walking pace on to the objective and beyond. The first of these barrages had been of shrapnel, but in 1917 HE and smoke were included in a variety of combinations as the situation dictated. The creeping barrage proved to be a most effective way to support infantry on to their objective, and it continued in use into World War II. The object was to force the enemy infantry to take shelter, to 'keep their heads down', until the British infantry was upon them – in effect, to neutralize the defenders while the attackers were exposed in no-man's-land. Eventually the value of this neutralizing fire was compared with that of the destructive barrages which previously had lasted for days prior to infantry assaults; and although destructive bombardment was never completely dispensed with, it began to take a minor role with the ascendancy of neutralizing barrages from 1917 onwards.

Mention must also be made of the demand upon artillery resources for anti-aircraft defence. Starting in 1914, obsolete guns, 13-pdrs, 18-pdrs and, eventually, specially devised guns were drawn

into this field of gunnery, together with thousands of officers and men to serve them. Though necessary to defend headquarters and rear areas, this form of artillery detracted from the main effort at the front.

The officers and men of the Royal Regiment of Artillery serving with the BEF eventually developed standards of gunnery limited only by the capabilities of the guns and ammunition available to them. Their peak was undoubtedly reached in the last months of the war when, following up a beaten enemy, they were able at the shortest of notice to fire effectively in support of the infantry, even providing field guns to act in an anti-tank role. But it should be remembered that of all the millions of rounds of artillery ammunition fired (nearly 100 million 18-pdr shells alone), most had no other purpose than wire-cutting, creeping barrages, and other forms of interdiction. As one commentator remarked, 'it remained the greatest wonder that so much ammunition could be expended without hurting anyone but the taxpayer' – as an infantry officer he could be excused such cynicism. In the end it was the 'poor bloody infantry' who had to drive the enemy from the soil of France and Belgium at the point of the bayonet.

WEAPONS & TACTICS: INFANTRY

Few new infantry weapons were devised and issued to the British Army in 1917 and 1918; but skill-at-arms – i.e. handling of and marksmanship with the weapons that were available – improved during this period. Accounts of fighting in the second half of the war record many occasions when superior German forces were driven off with the kind of well directed small arms fire which matched that of the Regulars of 1914. At Festubert in April 1918, for example, a single battalion – the 1st Gloucesters – held off four enemy regiments with rifle and Lewis gun fire, one 28-man platoon firing 5,000 rounds in less than an hour. The barrels of Lewis guns were worn smooth by the intensity of the fire put out as German snipers and artillery crews were shot down; and as the enemy finally withdrew, the Gloucesters stood on their parapets to pour fire onto them.

Tactics were also improved. The enormous casualties suffered in the Somme campaign of 1916 pointed up the infantry's vulnerability when ordered into the attack in 'partridge drive' lines, often inadequately supported by the artillery. The bankruptcy of such tactics, and the adoption by the Germans of more effective defensive works, forced the BEF to revert to the 'fire and movement' tactics of the pre-war Regulars in order to be able to fight their way forward under the cover of their own firepower if they 'lost' supporting barrages.

Men of the 13th Durham Light Infantry (23rd Division) rest in a communication trench before the attack on Veldhoek, one of the battles of 'Third Ypres' (Passchendaele), September 1917. In addition to their personal arms and equipment they are encumbered with picks and shovels, rolls of sandbags, Lewis gun magazine panniers, 'bombs' and bandoliers of extra small arms ammunition. Note that not all the ground fought over in this campaign was the rain-sodden marshland so often described. (IWM)

January 1918: Lewis gunners of the 15th Royal Scots (34th Division). Weighing 27lb, the Lewis was a gas-and-spring operated automatic firing .303in ammunition at a cyclic rate of 550 rounds per minute. Its maximum effective range varied from 800 to 1,100 yards according to the skill of the firer. (IWM)

The platoon became the basic tactical sub-unit of manoeuvre, moving under the covering fire of its two light automatics (Lewis guns) and of its riflegrenadiers. Movement could be masked by smoke grenades (the No.26 & 27 phosphorus grenades, introduced in late 1916); and all infantrymen were trained in the use of the 'Mills bomb' (the No.5 grenade), which was no longer a specialist weapon. Each platoon had its own scouts and snipers trained in reconnaissance and rifle marksmanship. Thus the platoon commander had his personal 'pocket artillery' and machine gun support to cover him as he led his assault party, by short dashes and crawling, to close with the enemy and to engage them with bullet, bomb and bayonet.[2]

These tactics for attacking infantry were well tried, tested and developed in 1917 when the BEF mounted offensives at Arras, Messines, Ypres and Cambrai; but during these battles they encountered a new type of German defence works in the form of reinforced concrete bunkers (blockhouses or 'pill-boxes'), sited in depth and surrounded by deep belts of barbed wire, their machine guns providing mutual supporting fire. Such a network lay in the path of the Guards Division as they advanced on the Steenbeck stream north of Ypres, on 31 July 1917. The German pill-boxes were mostly untouched by the British creeping barrage, and machine gun fire from them checked the guardsmen, causing them to lose their covering artillery barrage. Sergeant Robert Bye of the Welsh Guards crawled forward from shellhole to shellhole to outflank the nearest pill-box, whose garrison he put out of action with grenades. His action allowed his unit to catch up with the barrage and move on. When further pill-boxes opened fire on his unit, Bye led volunteers forward to attack them until all had been bombed into submission. At the end of the day only eight men of Bye's platoon remained, but they had killed or captured 70 Germans. For his conduct that day Sgt Bye was awarded the Victoria Cross.

Grenades of both the hand-thrown and rifle-projected varieties continued to be devised and issued in many patterns, including the phosphorus smoke grenades already mentioned, chemical (tear gas), signal, parachute illuminating, anti-tank, and grenades for the 'West Spring Gun' projector. Perhaps the most effective of them all was the No.36 grenade, which could be thrown by hand or – when fitted with a 'gas check' baseplate – fired from a 2½in cup discharger attached to a SMLE rifle, out to just over 200 yards with a fair degree of accuracy.

2 See Elite 84, *World War I Trench Warfare (2): 1916-18*

A lance-corporal of the 1st/15th London Regiment (the Civil Service Rifles) described rifle grenadiers in action in 1917:

'I was in charge of a squad of rifle grenadiers... As soon as the barrage lifted we went on to the [enemy] trench but found it evacuated by the Boche, but we could seem them in the next trench bustling about... My stalwarts and I had our job to do. We selected our position and started a rifle grenade attack on the many parties of Germans we could see... These rifle bombs were quite good things, and one could follow their flight right down to the hit... In the excitement of the moment I forgot to remove the [pin] from the first one I sent off. However...in at least two cases [I] dropped a bomb into a party of the enemy.'

February 1918: in a solidly revetted trench, men of the 6th York & Lancasters (11th Division), clean their Lewis gun. Two men are armed with pistols, and a third (left) holds the spare parts bag. A corporal and eight men formed a Lewis gun section, carrying, in addition to the gun, 44 magazines each holding 47 rounds – a total of more than 2,000 rounds weighing 182 pounds. (IWM)

From the beginning of trench warfare, German snipers dominated the battlefield; one battalion recorded losing 18 men to them in a single day in 1915. It was to take the BEF some time to obtain proper sniping equipment (particularly telescopic sights) in quantity, and to set up schools to train men as snipers. In late 1915 the Ministry of Munitions came to the conclusion that the best source of optical instruments was Germany, and (impossible though it sounds) sent a representative to neutral Switzerland to buy, among other items, telescopic sniping sights. These the German authorities were fully prepared to supply, at a rate of between 5,000 and 10,000 per month, in return for rubber... The deal never went through, perhaps because the consciences of the 'men from the Ministry' for once got the better of them. Eventually sufficient optical and telescopic sights, telescopes and binoculars were obtained, and officers and men began training in the sniping schools which were set up in France and the UK. From 1916 onwards British snipers began to contest the German domination of no-man's-land. Each British infantry battalion eventually had a sniper section of an officer, two NCOs and eight two-man teams, all equipped with telescopic sights. They were at their most effective operating from 'hides' in no-man's-land, or from specially constructed sniper posts built into front line parapets.[3] (The 'snipers' mentioned above in rifle platoons were not graduates of the sniper schools, but men chosen for their marksmanship with a standard service rifle, though they were no less effective in the attack or on patrol.)

The standard British small arms ammunition, the .303in Mark VII round, had been eroding and rusting barrels ever since its introduction in 1910. The cause was the cordite propellant used in combination with primers containing chlorate of potash. This was a nuisance to riflemen, but a serious problem for machinegunners, particularly those operating Vickers guns, since the enormous quantities of ammunition fired through

OPPOSITE **The battle of Arras, May 1917: men of a divisional Pioneer battalion carry forward screw pickets, sandbags and barbed wire. Wire obstacles were invariably set up under cover of darkness when screw pickets could be fixed in silence – unlike driven pickets, which required the hammering which attracted enemy fire. (IWM)**

3 See Elite 68, *The Military Sniper since 1916*

A sniper of a battalion of the King's Royal Rifles posing – unconvincingly uncamouflaged – to show off a 'Pattern 1914 .303 inch, Mark 1*, W.(T)' sniper rifle fitted with Model 1918 telescopic sight. This was by far the best of all the sniping equipments issued to the BEF during the war, but very few were in service before the Armistice. (IWM)

Vickers barrels wore them out at an alarming rate. In 1916 a Mark VII Z round came into service using nitro-cellulose, a propellant whose 'progressive' burn did not erode machine gun barrels to the extent of cordite. In 1918 each division formed a machine gun battalion from its brigade and attached MG companies, bringing all 64 guns under centralized command. These, and the division's 336 Lewis guns, represented an enormous growth in firepower over the 24 guns each division brought to France in 1914.

The 3in Stokes mortar, the largest piece of 'artillery' in the hands of the infantry, also had its efficiency increased by the addition of secondary propellant charges to the bombs to attain greater range, and by improvements to their fuses. The volume of fire that could be put down by an infantry brigade's eight mortars was considerable at the normal rate of fire of six rounds per minute; however, each weapon could fire 30 to 40 rounds per minute for short periods (two to three minutes) to produce a veritable hail of bombs on its target.

Communications were pushed to the limits of what was then possible by ingenuity and training. Signalling when in defence was often disrupted by enemy artillery fire, which cut field telephone cables and killed runners. Cables were duplicated, 'tee-ed in' laterally like enormous spider webs, and dug in. Whole groups of runners would be sent with a message on the premise that at least one would get through. Lamps, discs and flags flashed Morse signals back and forth under suitable conditions, and rockets and signal rifle grenades

were used to call down supporting fire to pre-arranged schemes. One of the problems associated with field telephones was that their cable was of the 'earth return' type: a single cable connected telephones with the exchange, all of which were 'earthed' to the ground which provided the return circuit. While this system undoubtedly saved on cable, it was prone to being overheard by enemy listening devices which could read the earth signals within a mile of British forward terminals. (One of the Germans' best feats of interception was a divisional operation order dictated to a forward telephone at Ovillers, on the Somme.) Such intercepts were gradually overcome by the use of double field cable, by the monitoring of careless talk and, eventually, by the removal of all terminals within the range of enemy interception. Eventually machines such as the Fullerphone, which were harder to intercept due to their lower direct current output, provided safe communications, as did ciphers, guarded speech, and the use of codewords to conceal unit identities, locations and personalities. In time, efforts were made to listen in to German telephone traffic and to deceive the enemy with bogus transmissions.

In the assault, communication problems intensified, with newly laid cable certain to be cut by shelling. (Some unfortunate signallers were ordered to lay rolls of chicken wire across no-man's-land in place of field cable.) Runners had to wear special badges to ward off battle police patrolling assault trenches after the attackers had 'jumped off', but nothing could improve their chances of escaping the heavy fire through which they had to move. Visual signalling equipment was frequently unavailable when needed, when the men carrying it became casualties. One method of keeping in touch with infantry in the assault was by means of low-flying aircraft dropping messages, reading signal panels, sending Morse lamp messages, or even hailing those on the ground through a megaphone. A steady nerve was needed on such sorties, as ground fire was often indiscriminate. A private of the 16th Rifle Brigade (St Pancras) recalled an incident in October 1917:

'Suddenly a 'plane came over, very low. One of our Lewis gunners said, "I'll have him", thinking it was a Jerry 'plane... He put a pan of ammo [47 rounds] to his gun and fired the lot. Down came the 'plane, a good distance away. We heard later he had brought down and killed a French pilot – but we never heard any more of it.'

Table 2: COMPOSITION OF AN INFANTRY DIVISION, 1917 & 1918

1917 **Division Headquarters**	1918 **Division Headquarters**
3 Infantry Brigades (12 battalions, 16x Lewis guns each)	3 Inf Bdes (9 bns, 36x Lewis guns each)
3 Machine Gun Companies (16x Vickers guns each)	
3 Light Trench Mortar Batteries (8x Stokes 3in mtrs each)	3 Lt Trench Mtr Btys (8x Stokes 3in mtrs each)
HQ Divisional Artillery	HQ Divisional Artillery
2 Field Artillery Bdes (36x 18-pdrs, 12x 4.5in how)	2 Field Arty Bdes (36x 18-pdrs, 12x 4.5in how)
3 Medium Trench Mtr Btys (12x 2in trench mtrs)	2 Med Trench Mtr Btys (12x 2in trench mtrs)
1 Heavy Trench Mtr Bty (4x 9.45in mtrs)	
1 Divisional Ammunition Column	1 Div Ammo Column
HQ Divisional Engineers	HQ Div Engineers
3 Field Companies 1 Signal Coy	3 Field Coys 1 Signal Coy
1 Pioneer Battalion (8x Lewis guns)	1 Pioneer Bn (12x Lewis guns)
1 Machine Gun Coy (16x Vickers guns)	1 MG Bn (64x Vickers guns)
3 Field Ambulances 1 Sanitary Section 1 Mobile Veterinary Section	3 Field Ambulances 1 Mobile Vet Secn 1 Div Employment Coy
1 Divisional Train (4 horse transport coys)	1 Div Train (4 horse transport coys)

March 1918: horse, foot, and the shape of things to come. Tired infantry rest by a roadside as mule-drawn limbers and a Mark V tank pass by. (IWM)

The abandonment of linear defence by the German Army, in favour of defence in depth centred on masses of interlinked fortresses, was eventually copied by the British to cover parts of their line. The Germans had always chosen the most advantageous ground for siting their defence systems, and had always dug and wired more effectively than their enemies. The British had dug their first trenches facing the German lines on the premise that they were not going to be in them for long before advancing to drive the enemy from theirs. Over time they were forced to improve their trenches and wire in an effort to reduce casualties, and clean, well-constructed and well-maintained trenches with well-wired defences became a matter of unit pride. The remarks of the commanding officer of a battalion of the Royal Welsh Fusiliers, who disparagingly dismissed other battalions in his division as 'dirty in trenches', sums up the attitude of most. Handing over trenches that were in good order became a matter of pride and discipline; the best units set the standard, and the rest followed.

When the Fifth Army was ordered to extend its front southwards in late 1917, it adopted the German system of defence in depth, with a 'forward zone', a 'main battle zone', and a 'rear zone'. Unfortunately, there was no time to fortify these to any extent before they were driven in by the great German offensive launched on 21 March 1918. Without the concrete fortifications and the forests of wire employed by the Germans, 'defence in depth' in this case proved a failure. In time the German offensive was contained; and when the British went on to the offensive in their turn, their infantry were supported by artillery, tanks and aircraft in a combination of tactics that proved to be war-winning.

OPPOSITE **A signaller of the 6th York & Lancasters (11th Division) prepares a combination of signal rockets to call for supporting artillery when needed. The trench behind him has sustained a hit from a heavy shell. (IWM)**

Grevillers, August 1918: Mark V tanks of 10th Bn, Tank Corps, and infantry of the New Zealand Division. (IWM)

OTHER ARMS

Tanks

After their inauspicious performance in their first battle at Flers in 1916, opinion at the highest level differed as to the usefulness of tanks. Fortunately, that held by Douglas Haig was positive, and orders for a further 1,000 machines were placed. Nine battalions of what was then known as the Heavy Section of the Machine Gun Corps were to be raised to man these tanks, and the four tank companies in France in late 1916 were to be increased threefold to form four battalions. Under the leadership of Col Hugh Elles the new corps grew, absorbing the lessons of their first battle and devising more effective tactics for their next.

On a 24-acre site at Bermicourt a headquarters, depot, workshops and tank testing area were built, together with accommodation for hundreds of officers and men; a railway and sidings were built to receive the vehicles sent out from England. As time went by more land was taken over for accommodation, schools of driving and gunnery, and the many other needs of a corps which grew to 18 battalions and ten specialist companies by the Armistice. A tank training centre was also established in England at Bovington Camp, Dorset, to form and train new units before sending them overseas (it remains an armour training centre to this day, as well as housing the Royal Armoured Corps' Tank Museum).

In early 1917 the improved Mark IV tanks went into production. The Mark IV was a great advance on the Mark I that had fought at Flers, featuring an armoured petrol tank mounted outside the fighting compartment, gun sponsons that could be retracted for rail travel, greater ground clearance, thicker armour, an 'unditching' beam to enable the tank to drag itself from mud, and Hotchkiss machine guns and short-barrelled 6-pdrs replacing earlier armaments. There were more escape

(continued on page 33)

INFANTRY, 1918

1: Lance-corporal, 1st Bn, Royal Fusiliers, 24th Division

2: Private, A Coy, 3rd Bn, Worcestershire Regt, 25th Div

3: Lieutenant, 4th Bn, Grenadier Guards, 31st Div

ARTILLERY, 1918

1: Signaller, RFA, 15th (Scottish) Division

2: Gun position officer, RFA, 15th (Scottish) Div

CAVALRY, 1918

1: Sgt, 3rd (King's Own) Hussars, 2nd Cavalry Division

2: Staff captain, 3rd Cavalry Division

TANKS, 1918

1: Tank Corps staff officer

2: Sergeant, 8th Battalion, Tank Corps

3: Crew member, Tank Corps

MACHINE GUN CORPS, 1918

1: Lieutenant-colonel, 42nd MG Bn, 42nd (E. Lancs) Div

2 & 3: Detachment, A Coy, 42nd MG Bn, 42nd (E.Lancs) Div

TRAINING

1: Sergeant, Lovat Scouts

2: Lieutenant, 1/7th Bn, Cameronians (Scottish Rifles), 52nd (Lowland) Division

3: Officer cadet, Black Watch (Royal Highland Regiment)

ROYAL NAVY

1: Lieutenant, Anson Bn, 63rd (Royal Naval) Division, 1918

2: Lieutenant, Royal Naval Air Service, 1917

3: Petty Officer, D Coy, Hawke Bn, 63rd (RN) Div, 1918

LEAVE MEN, 1918

1: Private, 1st Bn, Hampshire Regiment, 4th Division

2: Private, 1/7th Bn, London Regiment, 47th (2nd London) Division

3: Staff captain

4: Lance-corporal, Military Police

hatches, a ventilating fan, a silenced exhaust, and a slightly more powerful engine.

Unfortunately, no Mark IVs were available for the Arras offensive in spring 1917, where the tanks' contribution was limited to 60 vulnerable Mark Is and IIs. Portioned out in 'penny packets' among the assaulting formations, many became bogged down before they could get into the fight; although some fine work was done by individual crews, much blame for infantry failures was put upon the new corps (which received the title Tank Corps in July 1917). The Mark IVs made their debut at Messines and Passchendaele; but they were once again used in only minor roles, and were often defeated by the morass into which the latter battlefield was transformed by the unprecedented heavy rains.

March 1918: a 'Whippet' tank of 3rd Bn, Tank Corps, moves into action. The rear door was the entrance to the fighting compartment, which mounted four Hotchkiss machine guns. (Author's collection)

The Tank Corps at last got their chance to show what they could do on good firm going in November 1917 at Cambrai, where 476 tanks, eight infantry and five cavalry divisions struck deep into the German lines behind a creeping barrage fired by 1,000 guns. The Hindenburg Line was breached to about 10,000 yards in under 12 hours – a gain equivalent to that at Passchendaele, which had taken three months and cost 250,000 casualties. Sadly, after the withdrawal of the tanks, the Germans counter-attacked and succeeded in regaining the ground won by the British. But the battle of Cambrai confirmed the value of massed tanks when properly employed in offensive operations.

By early 1918 the Tank Corps had 13 battalions supporting the BEF, and some new machines. The Medium A or 'Whippet' was smaller and faster than the earlier models, specifically designed to support cavalry in the exploitation role. The Mark V resembled the Mark IV but had a more powerful engine, better manoeuvrability, better armour, and Lewis instead of Hotchkiss guns; its top speed was 5mph as opposed to the 3.7mph of the Mark IV, and it could be driven and steered by one man instead of the three previously required.

The 17th Bn of the Tank Corps operated Austin armoured cars with two revolving turrets, each mounting a Hotchkiss gun. (Author's collection)

During the German offensive of early 1918 units of the Tank Corps were once again parcelled out to support formations in counter-attacks. Many tanks were destroyed or abandoned on the retreats; but by August the BEF were ready to go on to the offensive, with most of the resources of the Tank Corps concentrated to provide nine battalions of heavy tanks (324 vehicles), two of light tanks (96 vehicles), a reserve (42 tanks), 120 supply tanks, and 22 carrying field artillery. On 8 August 1918 – a date that the Germans would subsequently call their 'Black Day' – over 400 tanks went into action in support of the infantry, to open the 'Hundred Days' battle that ended in the Armistice of 11 November 1918. After a hurricane bombardment the tanks drove forward,

crushing the enemy wire and machine gun posts beneath their tracks. By the following day a penetration of 7½ miles had been made, and 200 guns had been captured along with 16,000 prisoners. In the actions fought as the BEF pursued a beaten enemy the efforts of the Tank Corps are best summed up by Douglas Haig, who wrote:

'Since the opening of our offensive on 8 August tanks have been employed in every battle and the importance of the part played by them in breaking the resistance of the German infantry can scarcely be exaggerated... It is no disparagement of the courage of our infantry or the skill and devotion of our artillery, to say that the achievements of those essential arms would have fallen short of the full measure of success achieved by our armies had it not been for the gallant and devoted work of the Tank Corps, under the command of Major-General H.J. Elles.'

Royal Flying Corps

The RFC remained a corps of the British Army until 1 April 1918, when it amalgamated with the Royal Naval Air Service to become the Royal Air Force, a branch of the services with the same status as the Army and Royal Navy.[4] Since its creation in 1912 the RFC had grown at an astonishing rate, from 113 flimsy flying machines in August 1914, into a powerful and homogenous arm providing the BEF with vital aerial reconnaissance while striving to limit that of the enemy. This latter task led to the development of effective British fighter aircraft, which by 1917 included the SE5a and Sopwith F1 Camel single-seaters and the two-seat F2b Bristol Fighter. All were fast by the standards of the day, had good rates of climb, and carried forward-firing machine guns. The Camel was particularly manoeuvrable as most of its weight was packed into the forward 7ft of its fuselage; Camel pilots shot down 1,294 enemy aircraft, more than any other British type. As well as the standard .303in 'ball' ammunition fired by the Lewis and Vickers machine guns of British aircraft, a variety of other rounds were developed including tracer, explosive, incendiary and armour piercing, which were mixed in lethal combinations according to the preference of individual pilots.

1918: a chaplain preaches to officers and men of the Royal Flying Corps from an improvised pulpit in the nacelle of an FE2b bomber. (IWM)

The RFC developed aerial bombing early in the war, and by 1917 bomber squadrons were able to strike by day and by night at enemy rear areas beyond the range of artillery. In 1918 an Independent Air Force of bombers carried out sorties against targets in Germany in the first strategic air raids conducted by the Allies (Germany, of course, had been carrying out such raids since 1915, with Zeppelin airships and later with Gotha aircraft). Strategic bombing had no effect on the war fought by the BEF except in drawing some German fighter units away from the Western Front to defend their homeland.

4 See MAA 341 & 351, *British Air Forces 1914–18 (1) & (2)*

Aerial gunnery training: Flight Sergeant Thomas Dunn demonstrates the use of a camera-gun. On training flights, 'shooting' with this device provided proof of a gunner's abilities when the film of his aim was developed. F/Sgt Dunn served in World War II as an officer in the RAFVR, still proudly wearing an Observer's badge from his RFC days. (Ken Dunn)

The closing months of 1918 saw Germany suffering shortages of aircraft, experienced pilots and fuel, and this opportunity to enjoy air supremacy over the Western Front was fully exploited by the BEF in their last great offensive.

Cavalry

For much of the war cavalry on both sides of the Western Front stood ready to exploit the breakthroughs that were the aim of so many offensive operations. The BEF kept three British Army and two Indian Army cavalry divisions as constituents of their Cavalry Corps from 1916 onwards. For most of the time its units tended their animals in the rear areas, and trained for the day when they would be summoned to ride through gaps blasted in the enemy's front in order to cut his lines of communication, raid his bases and generally create havoc in his rear. On the very rare occasions when such opportunities came about, the vulnerability of horses on a battlefield dominated by artillery, machine guns and barbed wire became all too apparent.

On the Somme, at the battle of Bazentin Ridge on 14 July 1916, units of the 2nd Indian Cavalry Division were called forward to exploit a perceived gap in the German line when the vital position of High Wood was found to have been abandoned in the face of very successful British attacks. However, those in command took so long to appreciate the situation and to issue orders that the enemy were able to mount counter-attacks on the British infantry entering the wood and on the two regiments of cavalry who rode forward to seize the open ground to its right. The cavalrymen gallantly charged into German rifle and machine gun fire, but once they came under artillery fire they were forced to dismount and dig in as their horses were led to safety. Relieved by infantry, they rode away from the battle next morning, their brief spell of fighting over.

In the desperate fighting that followed the German offensive of March 1918 the Cavalry Corps played a vital role as stop-gap infantry. A gallant attack was made by the Northumberland Hussars – one of the few Yeomanry regiments to remain horsed throughout the war – at Morlancourt in August 1918. Crossing a valley at the gallop to assist

No.85 Squadron RFC lined up for the camera, probably at St Omer airfield in 1918. The pugnacious lines of the SE5a fighter made a striking contrast with archaic-looking 'pusher' types like the FE2b. By the time of the German March 1918 offensive the RFC had 24 fighter squadrons on the Western Front, of which ten had SE5a's and nine had Sopwith Camels. During those critical weeks they flew as many low-level strafing sorties in direct support of the troops as air superiority patrols against the Fokkers and Albatroses of the German Luftstreitkräfte. (Author's collection)

their advancing infantry, they came up to a German position only to be halted by the wire and shot down by machine gun fire. During the 'Hundred Days' fighting before the Armistice there were many cavalry actions, including one that penetrated ten miles into the German rear; but for the most part the Cavalry Corps waited for a call to action that never came. Given the communications problems on the Western Front, it is odd to record that most of the mobile wireless (radio) stations with the BEF were in the possession of the cavalry, who were thought to need them for 'break-through' operations. What use they might have been put to elsewhere is open to speculation.

One stark indicator of the relative use of cavalry on the Western Front is a comparison between the fatalities recorded for the whole war by one Regular cavalry regiment and one Regular infantry battalion, both of which served on the Western Front from 1914 to 1918. The cavalry unit's losses totalled nine officers and 49 other ranks killed, and those of the infantry battalion 62 officers and 982 other ranks killed.

Royal Engineers

Of all the many tasks performed by the Corps of Royal Engineers, two stand out as major contributions to the emergence of the BEF as the best army on the Western Front by 1918.

The first was the way in which that branch of the Corps dedicated to signalling overcame the problems caused by rapid expansion to create a signal service second to none. Signalling within units remained the responsibility of that particular battalion or battery; but at formation level – brigade, division and above – the RE Signals Service established communications and kept signals traffic moving, whether by field cables (the term for military field telephones and exchanges), by dispatch rider (the term used for a man on horseback, but more often a motorcycle or vehicle), via a civilian telephone service, or by wireless telegraphy (as radio transmission was then known).

Swift and efficient communications moved through a network of signals centres established at all levels from battalion headquarters up to the General Headquarters of the BEF. Signals centres received all incoming messages, logged and prioritized them, and sent them onwards by whatever means they warranted. An infantry unit signal centre would typically be sited in a corner of the headquarters dug-out, where a signal clerk sat at his 'desk' beside a switchboard carrying the vital lines to brigade headquarters, the supporting artillery and, perhaps, the rifle companies. At hand would be the signals officer, the battalion headquarters staff, and a supply of runners. The higher the headquarters and the further to the rear, the grander the signal centre, with that at GHQ forming part of the empire of the Director of Army Signals, a major-general's appointment. Through this web flowed the

information that was vital to the functioning of the BEF: the mass of routine traffic concerned with the administration of the armies, and the operational traffic, which invariably had top priority and moved at greater speed. By 1918 the system was functioning at peak efficiency.

The second major contribution of the Royal Engineers was its postal service. The rapid delivery and distribution of letters and parcels from home was as crucial to the maintenance of the fighting man's morale as the supply of rations or rum, and memoirs reveal that troops at the front generally enjoyed a fast and reliable service.

A significant operational contribution by the RE was that of the excavation of the 19 large mines which were exploded beneath the German lines at Messines in June 1917. (Actually, only 18 of them were detonated. The firing mechanism on one failed, but was activated by a lightning strike in 1956, leaving a huge crater.) The mines were a major part of what was the first wholly successful major operation by the BEF up to that date. The effect was described by a watching infantryman:

'Hardly had we had our dawn rum rations [at 0310hrs] than there exploded that series of mines – the one at Hill 60 being our special interest, as we had helped to build it – which made the attack so famous. Contrary to the usual idea, we heard no noise, but the trenches in front of us rocked about, and we saw flames and debris hurled sky high. The firing of the mines were the zero signal for [the first wave] to go over, and our barrage to start. The great attack had begun, I doubt if there was ever such a noise as when that barrage opened. Machine guns by the thousand rattled away, while the 18-pounders fired so fast they sounded like machine guns.'

The Royal Navy ashore

The contribution of the 'senior service' to the BEF remained considerable in 1917–18. The Royal Naval Division continued to serve on the Western Front, although fewer naval and Royal Marine reinforcements meant that more Army units were posted to the division. Royal Marine heavy artillery units continued to support the BEF, and squadrons of the Royal Naval Air Service flew over the Western Front until amalgamated with the RFC into the Royal Air Force in April 1918.

Women's Services

'Arrangements were made for the men to spend a day in St Omer. A few friends and I went on the 19th [of May 1917]. We went by lorry and the first novelty on our arrival was the sight – new to us – of the girls of the WAAC, a pleasing sight to us, surfeited as we were with only seeing the frumpish French women.' So a rather ungallant infantryman recorded his first encounter with his countrywomen in uniform in France.

Before the outbreak of war women had served in military units devoted to nursing. The Queen Alexandra's Imperial Military Nursing Service had been formed in 1898, and the First Aid Nursing Yeomanry in 1907. From just over 400 women in 1914, the QAIMNS were joined by volunteers from the Voluntary Aid Detachments (VAD) of the British Red Cross, the St John's Ambulance Association, the Territorial Force Nursing Service, and by their own Reserve. By the end of the war more than 130,000 women were involved in military nursing, large numbers of whom served in France with the BEF.

An unknown member of the Military Transport Section of the Women's Legion. The WL originally had civilian sections for agricultural work, ambulance duties and canteen work; in 1915 a military cookery branch was added, followed by the military transport section in 1916. On the shoulder straps are the letters 'W' over 'L', and the straight titles on her sleeve read 'MILITARY' above 'TRANSPORT SECTION' in dark lettering on lighter ground. The sleeve badge is that of the Women's Reserve Ambulance, the 'Green Cross Corps', formed in 1915. (Author's collection)

In 1915 a Women's Legion was formed to assist the New Armies in the capacities of cooks, clerks, drivers, domestics, dispensers, telephonists, and so forth. From this, and similar organizations such as the Women's Volunteer Reserve, sprang the Women's Army Auxiliary Corps (WAAC) in 1917, renamed Queen Mary's Army Auxiliary Corps in 1918. The WAAC had four sections: Clerical, Cookery, Mechanical (Transport) and Miscellaneous. Some 41,000 women served in the Corps, 17,000 of them overseas and mostly with the BEF, the first arriving in France in March 1917. They held no military ranks; officer and NCO equivalents were called 'officials', 'controllers', 'administrators' and 'forewomen', and privates were termed 'workers'.

One young woman who served in France was Sara Bonnell, who joined the FANY in 1914 aged 26, as an ambulance driver. Unable to get to France with the FANY, 'Sadie' Bonnell joined the Canadian Army Service Corps to achieve her ambition; and in 1917 she was awarded a Military Medal, presented to her in the field by Gen Plumer. Her citation read in part: 'For gallantry and conspicuous devotion to duty, when an ammunition dump had been set on fire by enemy bombs and the only available ambulance for the removal of wounded had been destroyed...[Bonnell] arrived with three ambulances and, despite the danger arising from various explosions, succeeded in removing all the wounded. [Her] conduct throughout was splendid.' Sadie made light of her brave act: 'I was there to do something useful... There was a job we had to get done.'

The WAAC was disbanded soon after the war, although some women stayed on with the War Graves Commission and some went to serve with the British Army of the Rhine.

Transport

The BEF crossed to France in 1914 almost totally dependent on horses for transportation. The railway system of northern France was used to haul ammunition, rations, forage, and the countless other needs of the BEF from the ports to railheads. Hundreds of miles of additional railway were eventually built to carry the increasing needs of growing armies, and narrow gauge tracks were laid to get artillery ammunition up close to the gun lines. Infantry were also moved by rail from time to time, but mostly they marched.

Horses hauled the guns, limbers and ammunition wagons of the field artillery, and the General Service wagons of the divisional trains. They provided the mounts for cavalry, and hauled the tens of thousands of smaller vehicles, such as limbers and field cookers, required by most units. The BEF required hundreds of thousands of

No.4 Remount Depot, Boulogne, 1918: mules being watered by men of the Army Service Corps. Hardier than horses, mules were used as pack animals, although the larger American mules – e.g. right foreground – were used to pull wagons and guns late in the war. (IWM)

London Daimler omnibuses, with their windows boarded up and wearing a coat of khaki paint, embarking troops after the fighting near Arras, April 1917. An infantry unit have 'embussed' for their journey, while the men of a machine gun company await their turn. (IWM)

horses and mules, and they in turn needed handlers and veterinary services. Most pertinent of all, enormous quantities of forage had to be moved up to them from the ports, via the railways and roads. The scale of the never-ending labour needed to feed and maintain the BEF's animals is difficult to comprehend today; horses had to be fed, watered and cared for even when they were idle – a motor vehicle requires no fuel and minimal maintenance until put to use.

Mechanical Transport companies of the Army Service Corps brought the first petrol-driven vehicles to France. At first few in number, these consisted of motorcycles, cars, lorries (trucks) and 'omnibuses'. The buses were requisitioned from the London General Omnibus Company, 75 going to the Royal Naval Division engaged in the defence of Antwerp, and 300 to the BEF. (Their civilian drivers went with the vehicles, either in the uniform of the Royal Marines or that of the Army Service Corps.) Of these, 150 of the 'Army' buses remained as personnel carriers, but the other 150 were converted to lorries or special purpose vehicles. Eventually almost half of the LGOC's fleet of buses saw service in this way (one of which, 'Old Bill', remains on exhibition in the Imperial War Museum, London).

Every means of transport was pressed into use to shift the unimaginable quantities of supplies and munitions needed by an army of around two million men. Near Arras, 1917, an embanked narrow gauge track for the light railway has been built close beside the River Scarpe, where transport barges wait for loading. (IWM)

Large numbers of lorries were impressed into military service in 1914 under a subvention (subsidy) scheme which had been in operation since 1911. Under this system the owners of vehicles suitable for military service were paid an annual subsidy from the War Office for maintaining their transport in good order and agreeing to surrender it for military service in exchange for a fixed sum. There were two classes of vehicle: Class A, capable

of carrying 3 tons, and Class B, which could carry 30 hundredweight (1½ tons). Vehicles were to have governed petrol engines, 4-speed gearboxes (plus reverse), magneto ignition, and standardized driving controls, transmission, wheels, tyres and lighting. Vehicle designs acceptable to the War Office included Dennis, Thorneycroft, Leyland and Wolseley. On the outbreak of war, 1,200 lorries were immediately 'called up' under the subsidy scheme. Wartime production of motor vehicles followed the specifications laid down by the scheme, and the firm of Dennis went on to build more than 7,000 Class A vehicles, Thorneycroft 5,000, and Leyland, 12,000.

A variety of motorcycles and touring cars were requisitioned in 1914 for dispatch riders and as staff cars; but eventually a number of types were accepted as standard, including the Vauxhall 'D' Type, and the famous American Ford Model 'T', of which about 19,000 were acquired by the British (who also purchased large numbers of 3-tonners from the Four Wheel Drive Company of Clintonville, Wisconsin).

When heavy artillery was ordered to France the guns were towed into position from the railheads by petrol-engine tractors – huge and powerful machines that moved at a walking pace. Two such models were the Foster-Daimler, a 105hp machine, eight of which were needed to tow a 15in howitzer and its ammunition; and the American Holt 75hp tractor, the first vehicle with tracks to see service with the BEF.

Many vehicles were adapted to roles as diverse as ambulances, mobile pigeon lofts, anti-aircraft gun 'portees' (mobile firing platforms), searchlight portees, machine gun carriers (motorcycle combinations), mobile workshops, light railway tractors, and RFC tenders (all-purpose airfield lorries, of which the firm of Crossley built over 4,000). However, by far the greatest use for the lorries of the BEF was the day-to-day ferrying of supplies of all kinds from railheads to forward dumps. Here unit animal transport could collect their needs and take them to a point behind the lines, from which they would be carried to their final destination on the backs of the PBI.

A studio portrait of Pte Charles Honychurch, 15th London Regiment, 1918. He wears the cap badge and metal shoulder titles of his regiment, with the additional cloth title 'Civil Service Rifles'. Note the 'LG' Lewis gunner's badge above a wound stripe on his left forearm. (Douglas Honychurch)

UNIFORMS & EQUIPMENT

The uniform of the 'Tommy' – the 'other rank' element of the BEF – underwent a number of slight changes in the period 1917 to 1918. The 'modified' service dress jacket ceased to be made after the New Armies were clothed; those contracted for later were of the pre-1914 pattern. A new 'soft' cap, distinguishable by the rows of stitching on its peak and headband, was introduced in 1917 to replace the pre-war stiffened cap and the 'Gor' Blimey' trench cap. The advantage of the soft cap was that it could be rolled up and put in a pocket or haversack when the helmet was worn. A new pattern of ankle boots, the B5 pattern, began to be issued; these had protective toecaps of a distinctive crescent shape. Greatcoats and leather jerkins were worn in cold or wet weather, and a collar and flap were added to the issue 6ft x 3ft groundsheet so that it could be worn as a waterproof cape.

Insignia worn on uniform, both official and unofficial, proliferated in the last two years of the war. Wound stripes – vertical bars of gold 'Russia braid' worn above the left cuff – were introduced in July 1916, one for

August 1918: three Victoria Cross winners at an investiture at Blendecques. They are (left to right) Capt J. Crowe, 2nd Bn, Worcestershire Regiment; 2nd Lt L. Knox, 150 Field Coy, Royal Engineers; and Sgt C. Train, 2nd Bn, London Scottish. Captain Crowe, a former regimental sergeant-major, had only just been commissioned when he won his VC in April 1918. Lieutenant Knox won his cross destroying bridges in the face of advancing Germans on 22 March 1918. Sergeant Train had actually won his VC in Palestine in 1917. (IWM)

each wounding. (A photograph of the VC winner CSM John Skinner of the 1st King's Own Scottish Borderers shows him with no fewer than seven wound stripes; beside him is a fellow company sergeant major displaying eight.)

The year 1917 saw the institution of the 1914 Star campaign medal, which soldiers immediately dubbed the 'Mons Star' because it was awarded only to those officers and men who had served with the BEF between 5 August and 22 November 1914; its distinctive red/white/blue ribbon therefore adorned the breasts of surviving 'Old Contemptibles' of the original, all-Regular BEF.

In January 1918 the institution of 'War Service Stripes' (more properly, Chevrons for Service Overseas), worn above the right cuff, also discriminated in favour of these original Regulars. A small blue chevron, point upwards, was awarded for each year served overseas; but if part of the first year was served before 31 December 1914, the first (lowest) chevron was scarlet. Thus by 1918 a medal ribbon, a scarlet chevron, and probably a couple of wound stripes marked the veteran who had been 'out since Mons'.

As the war dragged on more and more men qualified by time for Good Conduct Badges, the inverted chevrons of the same design as rank badges which were worn on the left cuff, one for two years served, two for five years, and so on. Several new skill-at-arms badges were introduced to mark proficiency with the new weapons which had come into service. These included 'LG' above laurel branches for the Lewis gun, a similar 'HG' for the Hotchkiss gun, and a blue grenade for the light trench

mortar. (The red grenade badge for 'bombers', introduced in 1915, ceased to be issued as grenades came to be used by all infantrymen.) A special arm badge was authorized for the officers and men of the Tank Corps; and a special 'observer's' winged badge was awarded for RFC personnel engaged on flying duties in that role. One qualification for which no badge was officially issued was that of sniper; there were several unofficial badges, but none that readily identified that employment – snipers were often given short shrift if they were captured.

By far the most colourful additions to uniform were the **'battle insignia'** – the schemes of patches and badges, mostly of cloth, stitched to the sleeves, collars and backs of jackets. These served to identify the wearer's division, brigade, battalion, and sometimes his company in the din and chaos of battle, while at the same time denying that information to the enemy. By 1918 many of these 'schemes' featured the divisional badge or sign, which by then had become as revered as their regimental badges by the troops of those formations with a good fighting record. Famous examples included the shield shapes worn by some units within the Guards Division; the 'HD' of the 51st (Highland) Division; the silver thistle, and the 'scotch' or wedge, of the 9th and 15th (Scottish) Divisions respectively; the butterfly of the 19th (Western) Division; the horseshoes of the 25th and 37th Divisions; the red triangle of the 29th Division; the chequerboard of the 34th Division; the red hand of the 36th (Ulster) Division; the dragon of the 38th (Welsh) Division; the roses of the divisions from Yorkshire and Lancashire; the Tower of London of the 58th (London) Division; the anchor of the 63rd (Royal Naval) Division; and the broken spur of the 74th (Yeomanry) Division.[5]

Several formations instituted 'battle badges', a form of mentioned-in-dispatches award equivalent to the French Croix de Guerre. Those of the 29th and 31st Divisions, for example, featured the divisional signs within a wreath of laurels, and were awarded with a parchment certificate.

Brassards (armbands) also proliferated, and were worn by all staff officers in differing patterns according to the formation they served: blue for brigade, red for division, red/white/red for corps, red/black/red edged with gold for army, and red-over-dark blue for HQ BEF. The signs of formations were often worn on these staff brassards, as well as letters or badges designating the wearer's appointment. Brassards worn by other ranks included those for signallers, stretcher-bearers, military policemen, and the yellow armlets worn by instructors at the base depots in France – the hated 'canaries'.

The most honourable insignia worn on uniform were the ribbons of the **decorations** awarded for bravery in action. The supreme award was the Victoria Cross, which could be given to a soldier of any rank. Apart from the VC, awards for

The 'small box' respirator gave protection to the wearer's eyes and lungs; here it is worn by an officer of a cavalry regiment – note the breathing tube running from the 'face piece' (mask) to the 'small box' filter canister contained in the haversack on his chest. Note also the crude respirator protecting the nostrils of his horse. (Author's collection)

5 See MAA 182, *British Battle Insignia (1): 1914–18*

Men of an infantry unit having their small box respirators checked by an officer. Note the method of wearing the respirator haversack on the chest in the 'alert' position. (IWM)

gallantry or distinguished service in the field fell into two categories: those for officers, and those for other ranks – the Distinguished Service Order (DSO) and the Distinguished Conduct Medal (DCM) respectively. In December 1914 a lesser award for junior officers and warrant officers was instituted as the Military Cross (MC); and in March 1916 a similar award was instituted for other ranks as the Military Medal (MM). Of the 633 VCs awarded to the armed services of the British Empire in 1914–18, 415 were won by officers and men of the British Army, and most of those on the Western Front.

One of the most important pieces of **personal equipment** issued from early 1917 was the 'small box' respirator, an effective protection against the war gases that were so prevalent by that time. The term 'small box' described a filter canister containing wool and charcoal, connected by a flexible rubber hose to a face-piece. The respirator was carried in a haversack which was worn on the chest in the 'alert' position, giving the distinctive appearance which marked the British soldier of 1917 and 1918.

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THE PLATES

A: INFANTRY

A1: Lance-corporal, 1st Battalion, Royal Fusiliers, 24th Division, late 1918

The appearance of the front-line 'Tommy' from early 1917 was altered by the issue of the 'small box' respirator, worn in its haversack on the chest when gas was likely to be encountered. He is dressed and equipped in 'battle order', which included steel helmet, rifle, bayonet, 150 rounds of ammunition in the pouches of his 1908 pattern webbing equipment, haversack, water bottle, mess tin, entrenching tool and respirator. He wears the leather jerkin issued in cold or wet weather; and note his B5 boots, with their distinctive toecaps. A flash in regimental colours of red over dark blue is stitched to his hessian helmet cover; and on his sleeves are 'battle insignia' indicating his division, brigade, battalion and company by their colours and shapes. The silhouette of the four-pointed divisional sign worn in blue identifies A Company of his battalion; below it, the cross shape identifies the second battalion within each brigade, and its red colour the senior brigade (17th) within the division. Below these are his badges of rank; and on the left forearm note a skill-at-arms badge (Lewis gun), good conduct chevrons (over five years served), and two wound stripes. The 'overseas service' chevrons above his right cuff indicate service on the Western Front since 1914.

A2: Private, A Company, 3rd Battalion, Worcestershire Regiment, 25th Division, 1918

This illustrates the rear view of 'battle order'. Note the way in which the haversack, mess tin, water bottle and entrenching tool were worn. This soldier's 'battle insignia' indicate his division (red horseshoe); the division's senior 7th Inf Bde (red colour of the bar on the collar); the battalion (cloth title on sleeve, 'WORCESTERSHIRE' over 'FIRM' in white on green); and company, by the blue shoulder strap colour.

A3: Lieutenant, 4th Battalion, Grenadier Guards, 31st Division, 1918

In battle, junior officers frequently wore other ranks' uniform (called 'Tommy' or 'funk' jackets) to avoid identification by snipers; this officer wears such a uniform, with laced field boots and partial web equipment, though he retains his leather revolver holster and his walking stick. Note the badge on his helmet - his regiment's grenade on the blue/red/blue colours of the Guards; the badges of rank worn on his shoulder straps rather than the cuff; the regimental title lettered in white on scarlet, and below it the Roman battalion numeral, on both his sleeves.

B: ARTILLERY

This plate shows a gun position of a Royal Field Artillery 4.5in howitzer battery of the **15th (Scottish) Division, 1918.**

B1: Signaller

Hot food could be brought up to the men in forward trenches in insulated containers – very large thermos flasks – such as these being inspected at Arras in winter 1917; note that the man under inspection seems to wear a long-sleeved sheepskin jacket. More often rations were simply carried up in sandbags, and consisted of tinned food such as corned beef ('bully'), meat and vegetable stew ('McConochies'), bread or biscuits, jam, cheese, tea and sugar. (IWM)

OPPOSITE **November 1917: men from a battalion of the Notts & Derby Regiment salvaging discarded German rifles from the battlefield of Cambrai; several pose in souvenir German helmets. Note (right) the battalion drum major's appointment badge – a brass drum above four worsted chevrons point upwards. (IWM)**

B2: Captain gun position officer

The signaller is receiving target data from a forward observer, which he passes on to the gun position officer; the latter calls out fire orders to the guns, followed by any corrections necessary before firing for effect. In the background a 4.5in howitzer and its crew are seen in action. Enemy counter-battery fire has dropped gas shells in the vicinity of the battery, and all the gunners wear their respirators except for the GPO and the signaller, who have removed theirs in order to communicate. (The author had the privilege of meeting a former sergeant of the South Wales Borderers who had won the DCM during a mustard gas attack by refusing to don his respirator until all his men were warned of the danger. His devotion to duty cost him his sight.)

Note the insignia visible. These include the divisional helmet sign of the 15th (the fifteenth letter of the alphabet, 'O', surrounding a wedge-shaped 'scotch' as used to chock a wheel); the tartan sleeve patches worn by the artillery of the 15th Division, in conjunction with the brass 'RFA' shoulder strap title and white lanyard; the signaller's brassard and overseas service chevrons; and the GPO's cuff badges of rank.

C: CAVALRY

C1: Sergeant, 3rd (King's Own) Hussars, 2nd Cavalry Division, 1918

This figure shows typical 'marching order' of the British cavalryman in 1918. Since 1914 his equipment had been augmented, as extra ammunition, a bayonet, an entrenching tool, grenades, helmet and respirator were issued and stowed about his person or on his horse. (The animal also had a respirator, seen fastened to its bridle.) Only one of the cavalry divisions, the 3rd, used a scheme of 'battle insignia', but many cavalry regiments wore colourful devices on service dress, including the white horse 'flash' of the 3rd Hussars. In addition to this our subject has a metal cap badge 'sweated' to his helmet; his three-chevron badges of rank (above which he wears the regimental NCO's arm badge on his right sleeve), and overseas service chevrons marking service with the BEF since 1914. In the cavalry the respirator was carried on the back in such a way that it could be pulled around on to the chest in times of gas 'alert'. Note the bandolier of 90 rounds carried around the horse's neck, and the rifle carried in a boot to which is strapped a mess tin. Strapped to the saddle were wallets, groundsheet, greatcoat, sword, picketing equipment, forage and a nosebag.

C2: Staff captain, 3rd Cavalry Division, 1918

His helmet and trench coat bear no insignia other than a captain's badges of rank pinned to the shoulder straps, and a divisional brassard bearing the three horseshoes of the 3rd Cavalry Division. He carries a small box respirator and a map case.

D: TANKS

Standing before a Mark V (Female) tank of the 9th Battalion, Tank Corps, are three members of the newly formed corps in typical dress and equipment for 1918.

D1: Tank Corps staff officer

Note the special brassard in the green/red/brown colours of the corps, to which a tank arm badge has been sewn. His uniform is that of a major, with the distinctive red-banded cap and red gorget patches of a staff officer.

D2: Sergeant, 8th Battalion, Tank Corps

His battalion is identified by the red/blue halved disc on his helmet and loops round his shoulder straps; from about 1916 colours had been used to distinguish units of the Heavy Branch, Machine Gun Corps, and they were continued in the renamed Tank Corps. Note this tank crewman's mailed face mask, respirator, and 1914 pattern leather equipment pistol set, worn as shown for convenience inside a tank. On both sleeves of his jacket he displays the 'TC' corps title and his badges of rank; on the right only, the special tank arm badge of the corps, and his overseas service chevrons.

D3: Crew member, Tank Corps

This soldier has the brown canvas overalls that were worn as a protection against the grime of a tank's interior. Note his brass corps badge on his 'soft' cap, and 1914 pattern leather pistol set. All tank crew personnel were armed with pistols, usually .455in Webley revolvers.

E: MACHINE GUN CORPS

E1: Lieutenant-colonel, 42nd Machine Gun Battalion, 42nd (E. Lancs) Division, 1918

He wears standard officer's service dress with his badges of rank on the cuff. On his helmet and sleeves are the 'battle insignia' of his battalion, in dark blue on light blue; and he wears the badge of the MGC on the cover of his helmet and the collar of his jacket. Note his 'Sam Browne' equipment, small box respirator and trench boots.

May 1918: a Vickers machine gun sited in a barn at Haverskerque. In the fluid fighting following the German offensive of March 1918 there was often no time to dig in. The nearest man has the shoulder title 'MGC' over 'I', indicating the 'Infantry' branch of the Machine Gun Corps. (IWM)

E2 & E3: Detachment, A Company, 42nd Machine Gun Battalion, 42nd (E.Lancs) Division, 1918

A corporal and private clean their Vickers machine gun during a break in firing. Note that the colour of the 'MG' on the battle insignia of the 42nd Bn MGC varied from company to company, in this case with red lettering. The 'No.1' lubricates the elevating gear of the gun while the 'No.2' behind cleans the feed block. A funnel has been inserted in the water jacket to make it easier to top it up with water from the condenser can. Note the dress of the team, including respirators, 1914 pattern leather equipment pistol sets, and insignia including wound stripes and overseas service chevrons; they would also wear the 'MG' skill-at-arms badge.

F: TRAINING

The figures on this plate represent dress worn by personnel at training centres in France or England.

F1: Sergeant, Lovat Scouts

This Scottish highlander is instructing at one of the sniping schools in France. He wears the regimental Atholl bonnet and badge of the Lovat Scouts, with 'LS' shoulder titles. Numbers of highland ghillies and deer-stalkers recruited into this regiment were eventually sent to the Western Front where their skills in observation and marksmanship were put to good use, both in action and in teaching trainee scouts and snipers. This NCO demonstrates the use of a scout telescope, using as a rest a P14 sniper rifle mounting a Model 1918 telescopic sight.

F2: Lieutenant, 1/7th Battalion, Cameronians (Scottish Rifles), 52nd (Lowland) Division

This Territorial subaltern is attending a course. The red bars on his right sleeve are part of the 'battle insignia' of his division, red indicating the second brigade and three bars the junior battalion within that brigade. All other distinctions are regimental in nature, except for his overseas service chevrons.

F3: Officer cadet, Black Watch (Royal Highland Regiment)

While attending a course at an Officer Cadet Training Unit, cadets wore a white band around their headdress (here with this regiment's red hackle), and white patches on the shoulder straps. Note that our subject is a battle-experienced veteran of the rank and file – he displays three years' overseas service chevrons, and two wound stripes.

G: ROYAL NAVY

Personnel of the 63rd (Royal Naval) Division, serving with naval battalions such as the Anson, Drake, Hawke and Hood

Bns, continued to wear Royal Navy distinctions right up to the end of the war and the subsequent disbandment of the division. 'Battle insignia' indicating units were worn on helmets and sleeves, and both Army and RN badges of rank were displayed.

G1: Lieutenant, Anson Battalion, 63rd (Royal Naval) Division, 1918

On his cuffs are the rings of a naval lieutenant in light khaki braid, but on his shoulder straps the three 'pips' of an Army captain – the equivalent rank. He wears an Army 'soft cap' with a Royal Navy black band and embroidered badge. His collar badges are those of his battalion, and the patches on his sleeves indicate his battalion (dark and light blue) above his company (yellow). He displays overseas service chevrons since 1914, wound stripes, and the medal ribbon of the 1914 Star.

G2: Lieutenant, Royal Naval Air Service, 1917

On his almost identical uniform this aviator wears small distinctions. In the centre of his cap badge 'wings' replace the usual anchor, and the two-winged 'O' above his cuff rank on both sleeves indicates his flight observer status.

G3: Petty Officer, D Company, Hawke Battalion, 63rd (Royal Naval) Division, 1918

This casualty at an Advanced Dressing Station, with his third wound dressed and an evacuation label buttoned to his jacket, wears the Army sergeant's badge of rank on his right sleeve, and on his left the naval rating badge of crowned crossed anchors in blue on khaki. Above these are the 'battle insignia' of his battalion (a black bird silhouette, repeated on the helmet) and the green square indicating his company.

H: LEAVE MEN

Home leave was one of the most important factors in the maintenance of morale. Its frequency increased with rank, so that officers got roughly twice the amount of leave given to other ranks – one cause of discontent in the ranks. 'Although the officer might be the best of pals with his men,' wrote a lance-corporal, 'he seldom got their real confidence. To begin with, in the line the officers did not live there, but in a dug-out in the support or reserve line; he had as a rule a bed to sleep in, a variety of food, somebody to clean his clothes. Then his hours of duty were shorter, his leave more frequent, and his freedom much easier.'

It is late 1918; at a quayside in one of the ports in France, leave men are embarking for 'Blighty'. In the foreground two tired infantrymen step down the gangway on to the boat that will take them across the Channel. They are encumbered with 'Field Service Marching Order' and rifles, but they have made every effort to smarten themselves up lest they risk being hauled out of line for being too badly 'turned out'. They clutch their leave papers, passes and travel warrants.

H1: Private, 1st Battalion, Hampshire Regiment, 4th Division

This veteran, 'out since Mons', proudly displays the medal ribbons of the Military Medal for gallantry and the 1914 Star, together with four years' overseas service chevrons. His sleeves are marked with the 'battle insignia' of his division, brigade and battalion: the stylised ram's head shape of 4th Division is in the yellow of 11th Inf Bde, above the Hampshires' tiger flash. On his crowded left forearm are the crossed flags of a qualified signaller, the crossed rifles of a marksman, wound stripes, and two Good Conduct badges.

H2: Private, 1/7th Battalion, London Regiment, 47th (2nd London) Division

This young conscript is on his first leave from the front, lucky to have survived for a year unscathed. His cap badge is that of the London Regiment, and his shoulder title – 'P&SR' in light on dark green – identifies the 1/7th Bn, the 'Poplar and Stepney Rifles'. The diamond device on his sleeve is part of the 47th Division's scheme of 'battle insignia' in the shape of variously coloured playing card symbols; the bar below it is a company indicator.

Standing on the quayside are a staff captain **(H3)**, and a Military Police lance-corporal **(H4)**. Neither were revered by the front-line soldier, who looked upon those in safe jobs well behind the line with contempt. Staff officers were blamed for any piece of operational or administrative planning that went awry, while the 'redcaps' were simply loathed.

Leave men of the Royal Field Artillery at a London railway station, 1917. Draped about them is a motley collection of personal equipment including 1903 bandolier equipment, circular cavalry pattern mess tins, small box respirators as well as PH gas helmets, and steel helmets. One man has a 1903 pattern haversack and the other a Mills webbing cavalry haversack. (IWM)

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